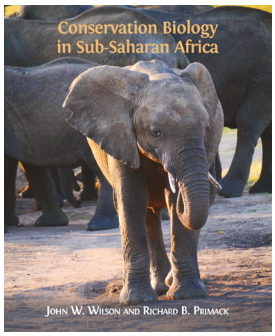
BOOK TITLE:
Conservation biology in sub-Saharan Africa



AUTHORS:
John W. Wilson, Richard B. Primack

ISBN:
9781783747504 (softcover, GBP42.95)
9781783747511 (hardcover, GBP59.95)
9781783747535 (EPUB, GBP5.99)
9781783747528 (free PDF)

PUBLISHER:
OpenBook Publishers, Cambridge, UK

PUBLISHED:
2019

REVIEWER:
Brian W. van Wilgen[1]

AFFILIATION:
[1]Centre for Invasion Biology, Department of Botany and Zoology, Stellenbosch University, Stellenbosch, South Africa

EMAIL:
bvanwilgen@sun.ac.za

HOW TO CITE:
Van Wilgen BW. A valuable resource for African conservation students. S Afr J Sci. 2021;117(5/6), Art. #9310. https://doi.org/10.17159/sajs.2021/9310

ARTICLE INCLUDES:
☐ Peer review
☐ Supplementary material

PUBLISHED:
28 May 2021

A valuable resource for African conservation students

Conservation biology is a discipline that strives to document the earth's biological diversity, to investigate how it is influenced by humans, and to find sustainable ways to protect or restore species or ecosystems. These are extremely important aims, given the significance of healthy ecosystems for the survival of life on earth as we know it. It is a field that needs to attract and develop the best talent available if these issues are to be effectively addressed. Conservation biology is also a discipline in crisis. Earth's ecosystems are being irreparably damaged, and species are being driven to extinction, at accelerating rates. Conservation biologists therefore have to operate under considerable pressure and have to make far-reaching decisions against tight deadlines and often with very limited funding. Students and teachers of conservation biology in Africa face additional challenges in that, up to now, textbooks that cover the discipline have been prohibitively expensive; for example, Richard Primack's book *Essentials of Conservation Biology*, and Martha Groom's book *Principles of Conservation Biology* retail at ZAR2300 and ZAR2400, respectively. These books are also typically illustrated with examples of species, ecosystems and practices from outside of Africa. It is against this background that John Wilson and Richard Primack's book is such a welcome contribution. It covers all the principles of the discipline and illustrates them with a wealth of examples from across sub-Saharan Africa. It is well written, profusely illustrated with colour photographs and diagrams, and each chapter concludes with a brief summary, suggested topics for discussion, suggested readings, and a bibliography. In addition, and more importantly, the entire book can be downloaded free of charge, placing it within the reach of students who ordinarily simply would not be able to afford it.

The senior author of this book (John Wilson) is a South African environmental scientist who now works in the USA using remote sensing for wildlife movement mapping, environmental monitoring, ecological restoration, and protected areas management. Richard Primack is a professor of biology at Boston University, with an impressive record of publication in the field of conservation biology, including several textbooks. Additional case studies from 29 African countries have been contributed by 59 additional authors, enhancing the relevance of this book across the continent.

Reading through this book will leave students with no doubt as to the challenges they will face if they choose to pursue a career in conservation. One chapter describes 'the scramble for space' in which landscapes across the continent are being fragmented by burgeoning human populations. This leads to widespread local extinctions as a result of habitats dwindling to isolated pockets that cannot support viable populations of species. Another chapter describes how climate change is already affecting the ability of many species to survive, and how this problem is set to accelerate rapidly over the next few decades. A third chapter addresses the lethal cocktail of pollution, overharvesting, invasive species and disease. The point is made that many of these threats to biodiversity do not lead to immediate and/or direct mortality, but instead have sub-lethal effects, and that responses to these 'silent, insidious and easily-overlooked' threats are often delayed until the problem becomes unmanageable. Readers are also reminded that species and ecosystems are seldom exposed to only one threat. Multiple threats are compounded, and any effective conservation strategy would have to deal with all these threats collectively.

With this background, the book moves on to what people could possibly do to conserve the vast array of species and ecosystems upon which we all depend. Extinction, for example, can be avoided by ensuring that areas of vital habitat remain connected, or by boosting populations with captive-bred individuals. The case of the northern white rhinoceros is provided as an example of how advanced 'assisted reproduction technologies' may even save a species that is now functionally extinct (the last male individual has died, and only two post-reproductive female individuals remain). However, frozen sperm is available, and eggs have been grown from the ovary tissue of deceased female rhinos. Scientists are cautiously optimistic that embryos can successfully be implanted into female southern white rhinos, and that the species could be saved.

It is not just species that are important, but whole ecosystems that need to be conserved. Protected areas are one of the pillars of conservation, but most of the world's protected areas were established without considering the strategic placement that would be needed to ensure their effectiveness. The book sets out the robust principles that are now available to guide the effective placement, size, spacing and configuration of new protected areas, and there has been some progress in this regard – 17% of sub-Saharan Africa's land surface is now included in over 7500 protected areas, many of them recently established. However, this does not mean that they are safe from a myriad of threats, and the principles by which they will have to be maintained through active management and the creation and enforcement of legal instruments are also described.

The book concludes, as it must, with 'an agenda for the future'. This stresses the need for adopting a vision that will take humanity past the immediate crisis, into a sustainable course of economic development. Such a strategy would have to satisfy our present and future needs and move away from the model of unsustainable growth that currently dominates all thinking. All of this is going to require strong leadership from a new breed of individuals – trained conservation biologists who fully understand the consequences of our current path to self-destruction in a rapidly urbanising world that increasingly sees itself as divorced from nature. The authors are to be congratulated on publishing an open-access book brimming with examples relevant to Africa. My fervent hope is that it will assist in some way in the training of a cohort of passionate and persistent leaders among the next generation of conservation biologists. We are going to need them.